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# Maine Agricultural Experiment Station

BULLETIN No. 61.

MARCH, 1900.

## NOTES ON INSECTS AND PLANTS.

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This Bulletin contains notes on the specimens of insects and plants sent to the Station by correspondents in 1899. It also contains a full account of the brown tail moth, a new pest to fruit trees and shrubs which is reported as established in Kittery.

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Requests for the Bulletins should be addressed to the

AGRICULTURAL EXPERIMENT STATION,

Orono, Maine.

# MAINE

## AGRICULTURAL EXPERIMENT STATION

### ORONO, MAINE.

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[The papers which follow were prepared by Professor Harvey in the fall of 1899 before his illness, and were in press at the time of his death. C. D. W.]

## NOTES ON INSECTS OF THE YEAR 1899.

F. L. HARVEY.

The year has been somewhat remarkable on account of the great abundance of several species of plant lice, leaf rollers and bud moths, and the great number of forest tent caterpillars. The important species of the year are considered below in notes or in greater length under special titles. The less important forms are merely mentioned in the table of insects (page 40) examined in 1899.

CHINCH BUG. (*Blissus leucopterus*). The chinch bug is reported as being quite abundant on the farms of Mr. Chas. Evans and Mr. W. L. Howe and others in the intervale lands near Fryeburg. It attacks herdsgrass, eating the bulbous bases of the stems after haying, requiring reseeding. Figured on page III of Report of this Station for 1894.

DESTRUCTIVE PEA LOUSE. (*Nectarophora destructor*, Johnson). This new species of pea aphid was very abundant in Maine the past season, doing much damage to garden and field peas.

CUCUMBER PLANT LICE. Plant lice were very abundant on squashes and cucumbers the past season, doing much damage. The common species, *Aphis gossypii*, was responsible for most of the injury, though another species common on rough amaranthus was also found on squashes.

THE CORN LOUSE, (*Aphis maidis*), was abundant on sweet corn in some parts of the State.

DOBSON FLY. HELGRAMITE. (*Corydalis cornuta*). The nymphs as well as the flies of this species have been received several times for examination, indicating that the species is abundant in Maine waters. The nymph is the well known bass bait. The nymphs and flies are both large and attract attention. The former is the terror of smaller water insects, while the latter is conspicuous by its large head, powerful jaws, and long coarsely nerved wings.

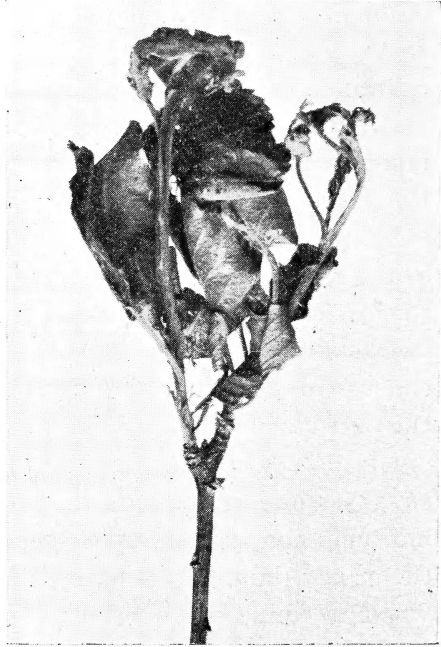
THE LESSER LEAF ROLLER. (*Teras minuta*). The specimens examined were bred from apple foliage. It also attacks cranberries and huckleberries and is one of the fire worms of cranberry bogs. It is considered in detail in Bulletin 56 of this Station.

THE OBLIQUE-BANDED LEAF ROLLER. (*Cacæcia rosana*). This was bred from the foliage of apple trees sent by Mr. Chas. S. Pope, Manchester. It is a new apple insect in Maine, at least we have not seen it before on apples. We reared the moths from currant leaves in 1894.

AMERICAN ELM PLANT LOUSE. (*Schizoneura americana*). This insect was abundant about Orono, Bangor and Augusta.



Work of the elm plant louse.



Work of the eye-spotted bud moth.

EYE-SPOTTED BUD MOTH. (*Tmetocera ocellana*). The moth was bred abundantly from apple twigs. It has done much damage to the flower and leaf buds and foliage of apple trees the past season. It is considered in detail in Bulletin 56 of this Station.

CHERRY TREE UGLY-NEST. (*Cacæcia cerasivorana*). This is a new apple insect for Maine. It was reported, also, as feeding upon choke cherry, its more common food plant, and upon

hazelnut. The conspicuous nests are common on choke cherry bushes in Maine, but uncommon on apples.

APPLE BUCCULATRIX. (*Bucculatrix pomifoliella*). The cocoons of this insect were received from Mr. L. F. Abbott of the Lewiston Journal, who reports them abundant in Lewiston. He also reports having seen them at Wilton, Jay and Livermore. For detailed account see Bulletin 56 of this Station.

THE AMERICAN TIGER MOTH. (*Arctia americana*). This was found on beets in a garden. It is not a common species in Maine. The fore wings are brown with white bands, the hind wings orange with round black spots. The moth has nearly three inches spread of wing. The beet belongs to the same family as the pigweeds (*Amaranthus*) upon which some tiger moths feed.

SPHINX MOTHS were quite abundant the past season. The elm sphinx was abundant on elms; the grape sphinx (*Philampelus achemon*) reported on grapes; the twin-spotted sphinx on apple. These insects are not usually abundant but the larvæ are capable of doing much damage on account of their large size and voracity.

THE STALK BORER. (*Gortyna nitela*). Specimens of strawberries containing the half grown larvæ of the above species were received from Buxton. The caterpillars were entirely buried in the berries. This habit is not new to entomologists, but so far as we know has never been observed before in this State. It has been detected boring into potato vines in Maine.

The usual number of specimens of *Cecropia*, *Promethea* and *Polyphemus* moths were reported. All were found in the cocoon or larval form upon apple trees. *Cecropia* was also reported feeding on plums.

THE VELLEDA LAPPET MOTH, though not an abundant insect in Maine, continues to be reported as doing some injury to plums. The books give the apple, poplar and other plants as its most common food. It is called the lappet moth because the caterpillar has a flat lobe or lappet on the sides of each segment. These lobes are provided with long hairs, giving the caterpillar a fringed appearance. When at rest the larvæ lie close to the branches and are hard to find.

THE FOREST TENT CATERPILLAR was very troublesome the past season in southern and western Maine. Many articles

appeared in the papers of the State regarding them. The Station issued a newspaper bulletin on the insect and the writer prepared an article for a bulletin issued by the State Board of Agriculture. It will be impossible to treat this insect in the forests, but an effort ought to be made to prevent its ravages upon ornamental and orchard trees.

THE FALL CANKER WORM, though reported from the center of the State, did not do great damage the past season and has become scarce about Orono.

THE MONARCH BUTTERFLY. (*Anosia plexippus*). This was unusually abundant the past season in the center of the State. The pale green chrysalids with golden spots on them are very beautiful objects and sure to attract attention. This large brown butterfly has black-veined wings on the black borders of which are many white spots. The larvæ feed on the milkweed. It is believed that the species dies out each season in the northern states and that the butterflies migrate from the south each spring. We have seen masses of this species as big as a bushel basket clinging together on the branches of a tree.

THE MOURNING CLOAK BUTTERFLY was exceedingly abundant the past season. It is a very bad elm tree insect, doing much damage to the shade trees in villages and cities. It is described in Experiment Station Report, 1888, p. 187.

THE DRONE FLY. (*Eristalis tenax*). This species was reported as being found about bee hives. These flies feed upon pollen and honey. They may have been attracted to the hives by the odor of the honey, but they would not venture into the hive and could do no harm.

ANTHOMYIID FLIES, probably *Pegomyia vicina*, were reported as doing much damage to the beet leaves in gardens. The larvæ of these flies work between the upper and under surface of the leaves, eating the leaf pulp and leaving whitish trails, not only injuring their functions but rendering them unsuitable for greens.

THE CURRANT FRUIT FLY. (*Epochra canadensis*). This species which has done so much injury about Orono was reported from Augusta, the past season. It attacks the fruit of the currant, causing it to turn red early, and drop prematurely. See Experiment Station Report, 1895, p. III.



THE BUFFALO CARPET BEETLE has been reported the past season from seven localities, representing every section of the State. For a consideration of this insect see Experiment Station Report, 1894, p. 115.

THE STRIPED SAP BEETLE. (*Ips fasciatus*). The last of June the following letter accompanied by specimens was received from Mrs. J. K. Garland, Eden, Maine: "I send you an insect that is killing my locust trees. It works on the trunk of the tree boring under the bark. In ten days it has apparently killed one tree and is attacking others. Is there anything that will destroy them? Will they be likely to attack maples and elms?"

The specimens received were the above species, an insect that has never been accused of more serious depredations than sucking the exuding sap from wounds on trees produced by mechanical injury, or insect depredations. Although we did not see the trees we feel sure they were suffering from attacks of borers and the sap beetles were there to feed upon the sap exuding from the borings.

THE MAY BEETLE continues to do damage in grass lands. The large white grubs of this species are the larvæ of the well known June bug. They feed upon the roots of grass and other plants, often doing great damage.

THE CHERRY LEAF BEETLE. (*Adimonia cavicollis*). This beetle was reported as doing much damage to the foliage of cherry trees. The species is common about Orono. It is reddish brown in color and about three-sixteenths of an inch long.

BEAN WEEVILS were reported as feeding upon stored beans. This pest seems to be widely distributed in Maine.

LARRID BEES. Last September we received a box of specimens from Mr. F. A. Campbell of Cherryfield and the next day specimens of the same insect from Mr. B. F. Grace of West Harrington. Mr. Campbell says his specimens "were dug from a gravelly, loamy hillock in a pasture. They have been known in the locality for three years. Over an area of 100 feet by 30 feet the ground is completely perforated with small holes the size of a pea and with a little earth around the entrance. In the middle of the day when it is sunny it is said they swarm over the hillock in great numbers making a noise with their wings that can be heard several hundred feet in the woods which surround the hillock. They are supposed to be Italian bees by some, but

if so, their habits are different from what I supposed. Some would like to dig for a ton of honey, but we shall not have them disturbed until we hear from you." Mr. Grace confirms the above account. The specimens sent were land bees and were accompanied by cells filled with *bee bread*, the pollen of plants, probably stored as food for the young bees. The larrids usually store their burrows with grasshoppers and related insects and are beneficial. The bee bread in this case had the smell of old cheese. There are fully fifty species of these sand bees in the United States and Canada, found mostly in the southwest. They do not make honey.

### THE BROWN TAIL MOTH. (*Euproctis chrysorrhæa*).

F. L. HARVEY.

Specimens of the brown tail moth were taken the past season on Cut's Island, Kittery Point, Maine, by Mr. Charles Elliott Thaxter. He thinks they were imported from Cambridge, Mass., in household goods and that they have been on the island for two years and are probably established. This insect was reported from South Berwick, Maine, in 1897, but we were in doubt as we did not see specimens. (See Experiment Station Reports, 1897, p. 175 and 1898, p. 126). Mr. Thaxter kindly sent us a specimen taken by him as stated above. This dangerous insect enemy of the pear and many other trees, herbs and shrubs has to be added to our long list of insect pests.

*Distribution and History.* The brown tail moth is a native of the eastern continent, occurring in Europe, Northern Africa and Asia Minor. In the United States it was first called to the attention of the Gypsy Moth Commission of Massachusetts in May, 1897, at Somerville, Mass. Investigation showed that it had been in that region for at least three years. How it was introduced is not known. The first knowledge the Experiment Station had of its appearance in Maine was the following letter from Mr. Sessions of the Gipsy Moth Commission of Massachusetts:

"We are now making an inspection of the territory infested with our new imported pest, the brown tail moth (*Euproctis chrysorrhæa*). Our inspector in discharge of his duty called on Dr. Geo. E. Osgood of No. 283 Highland Avenue, Somerville.

The doctor is one of the reliable physicians of Somerville. His place is infested with the moth. He said that he saw the brown tail moth in South Berwick, Maine, while on his last summer's vacation, and was sure that it was identical with the Somerville pest. He also said that while he was in South Berwick he professionally treated two cases of poisoning by contact with the moth and that the symptoms of the patients were identical with those of his Somerville patients who had been poisoned by the brown tail moth. The premises in South Berwick are owned by the doctor's father-in-law, Andrew Whitehouse, 10 Goodwin St., South Berwick. I send you notice that you may take such measures as you think proper in the case."

We have no doubt but what Dr. Osgood's observations were correct, although we were not able to secure specimens at the time or since. Mr. Whitehouse wrote us in 1898 as follows: "I cannot find any specimens to send you. In the summer of 1897 my boy was badly poisoned by them. They were numerous on a woodbine on my premises and a few on my fruit trees. Last year I cut down the woodbine and burned it and have not seen any since." Mr. Whitehouse may have destroyed the colony, at least it is to be hoped that he did. He thinks they were imported on roses from Somerville, Mass.

Charles Elliott Thaxter writing under date of July 14, 1899, from Cut's Island, Kittery Point, Maine, says, "My father thinks that you would be interested to know that we have caught two brown tail moths this month, one on the wing July 3d, and another at rest July 12. My father thinks the cocoons or caterpillars must have been brought here from Cambridge two summers ago on our household goods, as brown tail moths were very plentiful about our house in Cambridge while we were packing. My father feels sure that they were not brought this year and thinks that they are likely to have become established on this island." We requested Mr. Thaxter to send us a Maine specimen of the moth and he did so. Food plants of the moth in Europe are the apple, pear, plum and rose of the rose family, and a number of forest trees. In this country it seems to prefer the pear but has been found feeding upon between thirty and forty herbs, shrubs or trees including many families, showing it to be a general feeder.

The following account of the life history of this insect is taken from a special bulletin issued July, 1897, by the Massachusetts Experiment Station.

#### DESCRIPTION.

"The eggs are laid in July, in masses of from 200 to 300, usually on the under side of the leaves, and are covered with the brown hairs from the end of the abdomen. They hatch in a short time and the young caterpillars feed during the rest of the season on the surface of the leaves, leaving in a few days only the skeleton. While still young they begin to make a regular dwelling in which they hibernate during the winter. This habitation is constructed at the ends of the twigs and is made by drawing together a few leaves, lining them with silk and surrounding them with a mass of silken threads. These tents are so firmly fastened to the twigs that they cannot be removed without using considerable force.

"Before the leaves begin to grow in the spring, the young caterpillars emerge from their winter retreat and often feed on the swelling buds. They reach their full growth in the early part of June and transform to pupæ. In a lot of about eighty, bred in confinement, the last one pupated June 18.

"The full grown caterpillars are from an inch and a quarter to an inch and three-quarters in length. The head is pale brown, mottled with dark brown, with reddish brown hairs scattered over the surface. The body is dark brown or black with numerous fine, dull orange or gray spots over the surface, most pronounced on the second, third and fourth segments. Long, reddish-brown, finely barbed hairs arise from all the tubercles, and white branching hairs arise from the upper side of the lateral tubercles on segments 4 to 12 inclusive. These white hairs form elongated white spots along each side and are one of the most striking characteristics of this caterpillar. The subdorsal and lateral tubercles on segments 4 to 12 inclusive are covered with fine short spines of uniform length. There is a vermillion red, retractile tubercle on the top of the tenth, and a similar one on the top of the eleventh segment.

"When the caterpillars are done feeding they change to pupæ among the leaves, two or more often transforming together, spinning an open cocoon of coarse silk. The pupæ are about three-fourths of an inch in length, dark brown in color, and with fine yellowish brown hairs scattered over the surface. In a short time the moths emerge from the cocoons and after mating lay their eggs.

"The males are pure white with a satin-like luster on the fore wings, a reddish brown tuft at the end of the abdomen and sometimes there are a few black dots on the fore-wings. The antennæ are white and fringed with pale yellowish hairs. They measure about an inch and a quarter between the tips of the expanded wings.

"The females are of the same color as the males, except that they have no black spots on the wings, the anal tuft is larger and lighter in color and the antennæ are shorter and have shorter fringes. Expanse of wings, about an inch and three-quarters."

#### HABITS OF THE CATERPILLARS.

The young caterpillars of the brown tail moth, after hibernating in the tents which they construct at the tip of the branches, emerge in the spring and feed downward towards the main branches and trunk, leaving the naked twigs bearing the gray tents at the ends, a conspicuous evidence of the presence of this insect. They eat the entire leaf except the midrib, and, in leaves having strong ribs, like those of the sycamore maple, all the larger ribs are left untouched. When the caterpillars are numerous they devour not only the buds, leaves and blossoms, but even the green fruit.

One of the most annoying features of this caterpillar is the painful irritation or nettling caused by the insects when coming in contact with the skin. The hairs of the caterpillar are brittle and easily become detached, and when they come in contact with the skin, produce a most intense irritation. From this cause many persons have suffered so severely as to require the aid of a physician. The invasion of houses by these insects is a common occurrence, and not unfrequently they make their way into the sleeping apartments.

## INSECTS EXAMINED IN 1899.

COMMON NAME.	TECHNICAL NAME.	LOCALITY.	REMARKS.
BRISTLE TAIL .....	<i>Lepisma</i> .....	Riverside. ....	About in cupboards.
CHINCH BUG .....	<i>Blissus leucopterus</i> .....	Fryeburg. ....	Quite bad in grass land.
SQUASH BUG .....	<i>Anasa tristis</i> .....	North Livermore. ....	On squash and pumpkin vines.
DOG-DAY HARVEST FLY .....	<i>Cicada tibicen</i> .....	Eliot. ....	Taken on apple limb making incisions.
PERNICIOUS PEA APHIS. ....	<i>Nectarophora destructor</i> .....	{ Orono. .... } { Kennebunkport. .... } { Brunswick. .... }	On cultivated peas. Very abundant.
CUCUMBER PLANT LOUSE. ....	<i>Aphis gossypii</i> .....	{ West Eden. .... } { Belfast. .... } { Orono. .... }	On cucumbers.
AMERICAN ELM PLANT LOUSE. ....	<i>Schizoneura americana</i> .....	{ Orono. .... } { Bangor. .... } { Augusta. .... }	Abundant on elms.
DOBSON FLY. HELGRAMITE .....	<i>Corydalus cornuta</i> .....	{ Auburn. .... } { Castigan. .... }	Common water insect used as bait for bass.
THE LESSER LEAF ROLLER. ....	<i>Teras minuta</i> .....	Manchester. ....	Rolling foliage of apple trees.
THE OBLIQUE-BANDED LEAF ROLLER. ....	<i>Cucæcia rosana</i> .....	Manchester. ....	Attacking the foliage of apple trees.
EYE-SPOTTED BUD MOTH. ....	<i>Imetocera ocellana</i> .....	{ Manchester. .... } { Augusta. .... }	Destroying buds on apple trees.
CHERRY TREE UGLY-NEST .....	<i>Cacæcia cerasivorana</i> .....	Washburn. ....	Feeding on apple, choke cherry and hazel nut.
APPLE BUCCULATRIX .....	<i>Bucculatrix pomifoliella</i> .....	Lewiston. ....	Specimens taken at Lewiston, Wilton, Livermore and Jay.
THE POTATO-STALK BORER .....	<i>Gortyna vitela</i> .....	Buxton. ....	Boring fruits of the strawberry.
AMERICAN TIGER MOTH .....	<i>Actia americana</i> .....	Gardiner. ....	On beets in garden.
ELM SPHINX .....	<i>Seritonia quadricornis</i> .....	{ Harmony. .... } { South Dover. .... }	On elms and on pinks in garden.
HAWK MOTH. SPHINX MOTH .....	<i>Philampelus achemon</i> .....	{ Gardiner. .... } { North Livermore. .... }	On grapes.

THE TWIN-SPOTTED SPHINX .....	<i>Smerinthus geminatus</i> .....	Orono .....	A common apple insect.
ROSY DRYOCAMPA .....	<i>Dryocampa rubicunda</i> .....	Foxcroft .....	On clover.
CECROPIA EMPEROR MOTH .....	<i>Samia cecropia</i> .....	{ Lagrange .....	Plentiful on apples. One specimen on
PROMETHEA MOTH .....	<i>Callosamia promethea</i> .....	{ Readfield .....	plum foliage.
POLYPHEMIS MOTH .....	<i>Teleda polyphemus</i> .....	{ Kenilworth .....	On apple trees.
BROWNTAIL MOTH .....	<i>Euprodicia chrysorrhoea</i> .....	{ Machias .....	On apple trees.
VELLEDA LAPPET-MOTH .....	<i>Tolype velleda</i> .....	{ Stroudwater .....	This dangerous moth has appeared in
FOREST TENT CATERPILLAR .....	<i>Clisiocampa disstria</i> .....	{ Hampden .....	Maine.
FALL CANKER WORM .....	<i>Alsophila pomeltaria</i> .....	{ Kittery .....	On plum.
MONARCH BUTTERFLY .....	<i>Anosia plexippus</i> .....	{ Cuts Island .....	On shade trees in alarming numbers.
MOURNING CLOAK BUTTERFLY .....	<i>Euranessa antiope</i> .....	Troy .....	Larva on trees.
DRONE FLY .....	<i>Eristalis tenax</i> .....	All sections of State.	Received in the chrysalid stage
ANTHOMIID FLY .....	<i>Pegomia vicina</i> .....	Augusta .....	mostly.
THE CURRANT FRUIT-FLY .....	<i>Epiochra canadensis</i> .....	{ Monmouth .....	On elms.
CARPET BEETLE .....	<i>Anthrenes scrophularia</i> .....	{ Cornish .....	About bee hives. Not predaceous.
THE STRIPED SAP-BETLE .....	<i>Ips fasciatus</i> .....	{ North Anson .....	Mining beet leaves.
MAY BEETLE .....	<i>Lachnosterna fusca</i> .....	{ Fairfield Centre .....	Infesting the fruit of currants.
THE CHERRY LEAF BEETLE .....	<i>Admonia coccinellus</i> .....	{ Augusta .....	Attacking carpets.
BEAN WEEVIL .....	<i>Bruchus obtectus</i> .....	{ Livermore Falls .....	On locust trees sucking sap which ex-
PIGEON TREMEX. PIGEON HORNTAIL .....	<i>Tremex columbo</i> .....	{ Skowhegan .....	uded from wounds made by borers.
PELEGINUS .....	<i>Pelecinus polyturator</i> .....	South Carthage .....	In pastures.
LARRID BEE .....	<i>Larva</i> .....	Union .....	Working on foliage of cherries.
		Augusta .....	Working in dried beans.
		All parts of the State.	Working on elm and other trees.
		Eden .....	A black ichneumon with a long slender
		{ Cherryfield .....	pointed abdomen which is usually
		{ Walpole .....	curved.
		{ Lewiston .....	Barrowing in the ground.
		{ York Corner .....	
		{ East Lebanon .....	
		{ Sabattus .....	
		{ Winterport .....	
		{ Harrington .....	
		{ West Harrington.	

The caterpillars are quite gregarious up to the later stages of their growth, when they disperse to some extent; but when they occur only in moderate numbers, they retain their gregarious habits to a greater degree than when they are very abundant, since in this case the supply of food is soon exhausted and they are forced to migrate. When these caterpillars molt they gather in masses on the branches and cover themselves with a scanty mass of silk. When preparing to change to the pupal stage several of the caterpillars spin up in a common cocoon within the leaves at the tip of the branches. When numerous, they frequently pupate in masses under fences and clapboards, or on the trunks and larger branches of the trees.

The webs of the brown tail moth should not be confounded with those of the tent caterpillar or the fall web worm. They may be distinguished from those of the tent caterpillar by being placed at the tips of the branches, while the tent caterpillar constructs its tent in a fork of the limbs. This latter insect rarely, if ever, attacks the pear which is a favorite food plant of the brown tail moth. The fall web worm, while often found on pear trees, spins a large open web at the ends of the branches and feeds within this web. This insect does not appear until after the brown tail moth has ceased to do damage.

*Precautions.* This pest does a great amount of damage in Europe where laws are enacted to hold it in check. The Commonwealth of Massachusetts has enacted a law looking to its suppression in that state and made an appropriation and put the matter into the hands of the Gypsy Moth Commission. Now that it is probably locally established in Maine immediate action should be taken to prevent its spreading. A careful inspection should be made of the localities where it has been found.



## NOTES ON PLANTS OF 1899.

F. L. HARVEY.

The past season was dry and the conditions unfavorable for the growth and spread of fungi and only a few were reported. The apple scab and potato blight were not as bad as usual. This was due in part to the dry season and probably in part to the greater amount of spraying done. There was not the usual number of weeds sent for determination and no new weeds are known to have been introduced the past season. Specimens of the following plants, mostly sent for identification, were received in 1899.

BLADDER CHAMPION. (*Silene vulgaris*). This plant seems to be increasing as a weed in cultivated fields.

SILVERY CINQUEFOIL. (*Potentilla argentea*). This is a common plant on rocky ledges in Maine and is spreading along roadsides in many places. It attracts attention on account of the silvery pubescence on the under side of the leaves.

BIENNIAL EVENING PRIMROSE. (*Oenothera biennis*). This tall weed, with bright yellow four-petaled flowers, is one of the most common in the State. It seeds heavily and growing in waste places is able to maintain itself. Its tall woody stems covered with four-celled pods are a common sight in winter.

GOLDEN ALEXANDERS. (*Thaspium trifoliatum aureum*). This is a native plant and not reported before as a weed in fields. It is a perennial plant, usually growing in the woods and probably will be easily subdued by cultivation.

HOBBLE-BUSH. (*Viburnum lantanoides*). This is a native shrub, with beautiful foliage and attractive flowers. It is worthy of cultivation.

CULTIVATED DAISY. (*Bellis perennis*). Like many other cultivated plants this species escapes from cultivation and appears in fields. It has not proved a persistent or bad weed.

ORANGE HAWKWEED. (*Hieracium aurantiacum*). This weed has been almost entirely destroyed on the college grounds by turning the grass land where the weed was thick and harrowing frequently through the season. Scattering plants in the fields were pulled and burned and the ground where they grew salted.

CANADIAN HAWKWEED. (*Hieracium canadense*). This is a coarse, leafy-stemmed weed, growing fully four or five feet high on good soil and bearing at the top a corymb of yellow beads. It is native and though sometimes found in fields, it has not shown a tendency to spread like its relatives, the orange hawkweed and king-devil weed.

RAGGED Knapweed. (*Centaurea Jacea*). This fugitive from Europe is common in some pastures of Maine, in fields and waste places. The large heads and the fimbriated outer bracts make it a conspicuous plant, sure to attract attention.

THE SAND BUR, BEAKED NIGHT SHADE. (*Solanum rostratum*). The sand bur is reported as occurring in fields. This objectionable weed has been found several times in Maine, usually about where cars of western grain were unloaded. It is more of a roadside weed in the West. It will probably not maintain itself in cultivated fields in Maine.

THE RATTLE-GRASS. (*Rhinanthus Crista-Galli*). This is a bad weed in sandy lands along the coast. There is probably no way to get rid of it, but by careful culture. It seeds profusely.

REED GRASS. (*Phragmites Phragmites*). This grass was received from Kenduskeag. It is rare in Maine, growing in wet places, and so we record the locality. It is sure to attract attention on account of its high and beautiful plumes. It grows from five feet to fifteen feet high and bears a silvery plume from six inches to a foot in length.